APPENDIX G

EPD GUIDELINE FOR MODELING ALTERNATIVE OPERATING SCENARIOS

The 2005 *Guideline on Air Quality models* (40 CFR 51, Appendix W) recommends the examination of alternative, anticipated operating scenarios in order to determine the worst-case scenario for modeling. The Guideline suggests examination of the 50%, 75%, and 100% operating scenarios at a minimum (assuming these scenarios will be among the anticipated normal operating conditions of the project). An EPA PSD guidance memo dated 1982 requests that start-up, shut-down, and malfunction (SSM) scenarios also be examined to assure compliance of their impacts with NAAQS and Increments during periods of such alternative emissions.

Each scenario should be well-documented, including:

1. the reason(s) why the operating scenario may be important to the applicant,
2. the worst-case duration of each type of start-up emission period,
3. short-term, hour-by-hour variations in pollutant emission rates and stack parameters during such scenarios, and
4. an estimate of the portion of a worst-case year, or the number of start-up periods per year, each scenario may be employed.

GA EPD will evaluate this discussion to see how EPA's policies (including the EPA model guidance memos of 6/29/10[1] and 3/1/11[2]) on intermittent emissions modeling may apply. For this reason, such discussion should be provided in the modeling protocol, and repeated in the air quality assessment portion of the permit application. If the applicant does not expect to operate at less than capacity, a discussion of such expectation should be included in this analysis.

[1] "Guidance Concerning the Implementation of the 1-hour NO_2 NAAQS for the Prevention of Significant Deterioration Program" located at http://www.epa.gov/nsr/documents/20100629no2guidance.pdf
[2] "Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO_2 National Ambient Air Quality Standard" located at

These scenarios are commonly different for various criteria pollutants. For large combustion sources, shut-down scenarios may be briefly summarized, malfunction scenarios may not be predictably quantifiable, however, start-up scenarios may be important both in duration and in variation of emission rates and stack parameters. It is important to capture periods of the scenario when the air pollution control equipment may be less than optimally effective for one or more pollutants. Certain start-up scenarios should be evaluated by modeling each different hour of emissions and stack parameters for each criteria pollutant. Project pollutant-specific emissions should generally be modeled under start-up conditions (as well as expected or normal capacities) and the modeled impacts should be compared to PSD significance levels. If the project start-up scenario is predicted to exceed applicable PSD significance levels, this scenario (assuming it is worst-case) should be modeled with the off-site source inventories to demonstrate refined NAAQS and increment conformance. Whether the extent of a pollutant's SIA is based on a worst-case impact assessed for a start-up scenario depends on the proposed frequency, duration and change in impacts, as related to intermittent emissions guidance, including the memos referenced above.

The scheduling of the start-up scenario in the model should be explained clearly. For instance, if the start-up scenario is modeled as always starting at midnight, some explanation should be made as to why the start-up scenario cannot begin at some other hour, or if the timing of the start-up scenario is modeled to vary through the year, the basis for this decision should be explained.